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Cytology of Entomophthoraceae.—One species of *Empusa* and four of *Entomophthora* have been studied by Riddle.³⁹ In *Entomophthora* the division is more or less typically mitotic. During prophase the chromosomes are formed by a direct aggregation of the chromatin granules without the previous formation of a spirem. In the formation of zygospores the fusing bodies are coenogametes. The writer suggests that the azygospore of *Empusa* is of the nature of a chlamydospore. Cytological conditions indicate that *Entomophthora* is a more highly developed genus than *Empusa*.—CHARLES J. CHAMBERLAIN.

Lime and sphagna.—As a result of cultures PAUL, in a preliminary paper,⁴⁰ confirms the older and still prevalent idea that the sphagna are very sensitive to the presence of CaCO_3 in the water in which they grow, and controverts the pronouncements of WEBER and of GRAEBNER. *Sphagnum rubellum* is most sensitive, bearing less than 77^{mg} CaCO_3 per liter (i. e., 0.0077%), while *S. recurvum*, least sensitive, bears less than 312^{mg} . *S. rubellum* changes its beautiful red to a blue, indicating an alkaline reaction, the more clearly the higher the lime content of the solution.—C. R. B.

Julianiaceae.—Under this name HEMSLEY⁴¹ has established a new family of Mexican plants, known at present to contain two genera (*Juliania* and *Orthopterygium*) and five species. Its closest relationships are said to be with the Anacardiaceae and Cupuliferae; but the final judgment of the author places it in linear arrangement between Juglandaceae and Cupuliferae. "The absolute separation of the sexes and the very great diversity of the floral structure of the sexes, associated with pinnate leaves, offers a combination of characters probably without a parallel."—J. M. C.

Fossombronina.—HUMPHREY has described⁴² in detail the germination of the spores and the development of the sex organs of a Californian species, *F. longiseta*, the first investigation of any member of the genus since LEITGEB's, nearly 30 years ago. No striking anomalies appear. No centrosome was observed at any stage of nuclear division; blepharoplasts seem to appear *de novo*, and a *Nebenkörper* likewise, forming the middle piece of the sperm. The spermatids are of the pyramidal form described by IKENO in *Marchantia*, with no wall between the pair.—C. R. B.

³⁹ RIDDLE, LINCOLN W., Contributions to the cytology of the Entomophthoraceae; preliminary communication. *Rhodora* 8:67-68. 1906.

⁴⁰ PAUL, H., Zur Kalkfeindlichkeitsfrage der Torfmoose. *Ber. Deutsch. Bot. Gesells.* 24:148-154. 1906.

⁴¹ HEMSLEY, W. BOTTING, On the Julianiaceae, a new natural order of plants. Abstract. Read before Royal Society, London, June 28, 1906.

⁴² HUMPHREY, H. B., The development of *Fossombronina longiseta* Aust. *Annals of Botany* 20:83-108. *pls.* 5-6. 1906.